

Drinking Water Regulations and Introduction to the Revised Total Coliform Rule

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Outline

- Drinking Water Regulations
 - Principles
 - Definitions
 - Federal Role
 - Michigan's Requirements
- The Revised Total Coliform Rule (RTCR)
- Act 399 Rules Revision Process

Principles of Providing Safe Drinking Water

- Provide a safe, reliable and adequate supply of water to the public.
- Assure multiple barriers of protection are in place, if one fails will not adversely impact public health:
 - Source water/groundwater protection
 - Well construction
 - Treatment
 - Distribution system integrity
 - Cross connection control program
 - Operator certification and training
- Collection of drinking water samples on a routine basis is required to insure the water meets all applicable drinking water standards that are established based on risk to human health.

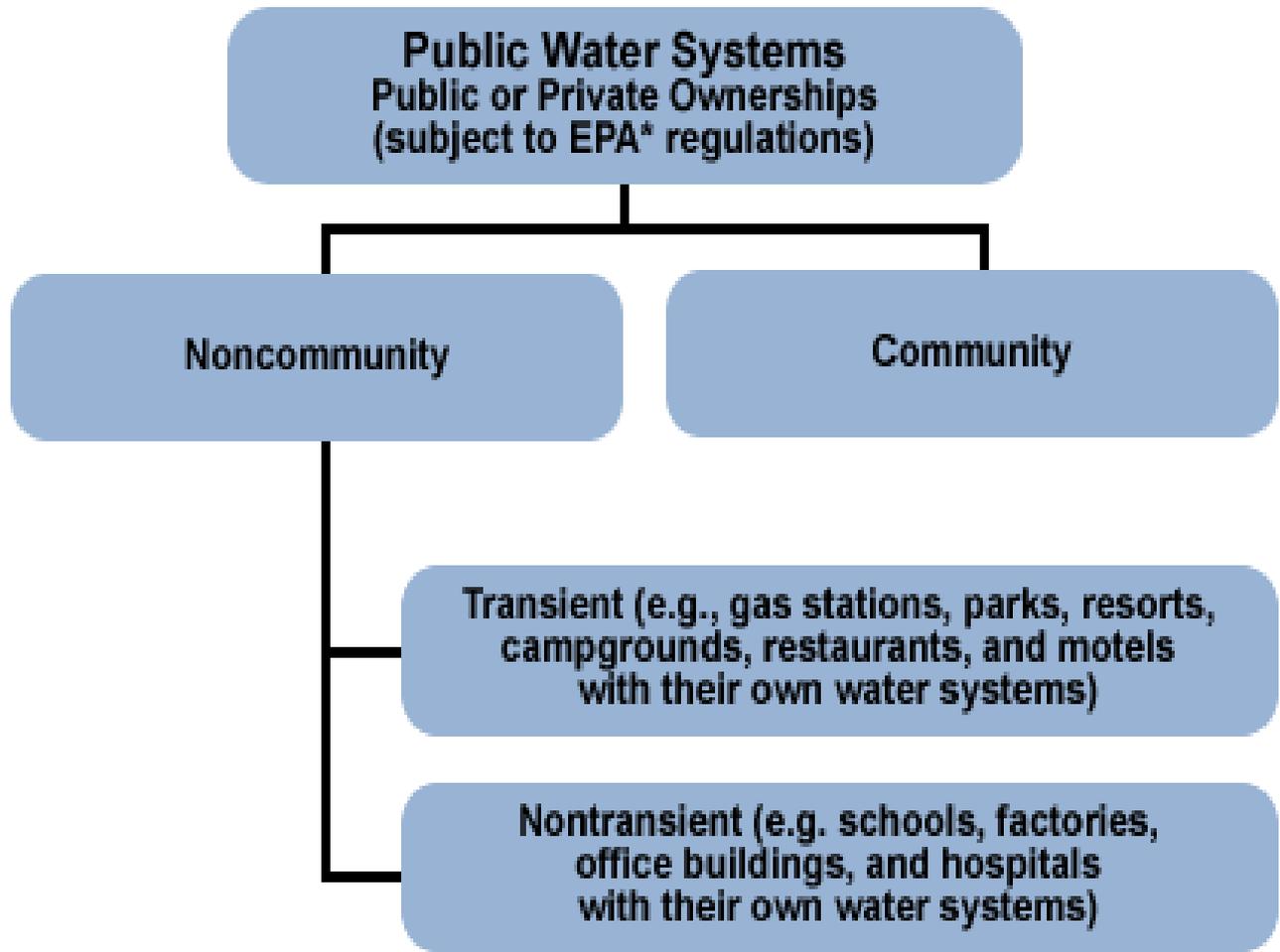
What is a Public Water Supply?

A facility that provides water for drinking or household purposes to persons other than the supplier of the water, and serves more than one living unit.

Serving water means water that can be used for:

- Drinking
- Food Preparation
- Handwashing
- Bathing
- Tooth brushing
- Dishwashing





Noncommunity Water Supply or NCWS

Federal Role

- Safe Drinking Water Act of 1974 – Authorized the Environmental Protection Agency (EPA) to regulate all public drinking water supplies.
- EPA is authorized to set National Primary Drinking Water Standards.
- Standards are legally enforceable, there are two types of standards: Maximum Contaminant Levels (MCLs) and Treatment Techniques (TTs).
- EPA grants authority to states to implement the SDWA and the drinking water standards; called PRIMACY.





Michigan's Primacy Requirements

- Must adopt all federal drinking water rules within 2 years of promulgation.
- Regulations must be no less stringent than the federal requirements.
- Must have an adequate compliance and enforcement program.
- Must have legal authority to compel compliance with standards, assess and collect fines and penalties.

MDEQ has begun the process of revising Act 399 for adoption of the federal Revised Total Coliform Rule!

So, What is the Revised Total Coliform Rule (RTCR)?

The RTCR aims to strengthen public health protection by:

- 1) Maintaining and strengthening the objectives of the current Total Coliform Rule (TCR).
- 2) Reducing the potential pathways of contamination into the distribution system (piping).
- 3) Using an optimal indicator of contamination; *E. coli* instead of total coliform (under the RTCR total coliform positives are considered an indication of overall system operation and condition, not an acute public health threat).
- 4) Requiring more stringent standards than the current TCR for systems to qualify for reduced monitoring.

What Changes Are Coming with the RTCR?

- Replaces the current MCL for Total Coliform with an *E. coli* MCL; changes in public notice content.
- Requires that Assessments be performed if triggered.
- If the Assessments are not completed, or known problems with the supply are not fixed, the supply will be cited with a Treatment Technique Violation.
- Supplies must all have an approved sample siting plan and it must be followed.
- If certain criteria are triggered, the supply must increase monitoring frequency.
- Reductions in monitoring are allowed but certain criteria must be met.
- There are increased requirements for seasonal systems.

RTCR New Definitions

- **Clean Compliance History** – a record of no MCL violations, no monitoring violations, no coliform treatment technique trigger exceedances or treatment technique violations.
- **Level 1 & Level 2 Assessments** – evaluations to identify the possible presence of sanitary defects, defects in distribution system, TC monitoring practices, and if possible the likely reason the system triggered the assessment.
- **Sanitary Defect** – a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.
- **Seasonal System** – a NCWS that is not operated as a PWS on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

Assessments

- Applies “find and fix” approach to possible contamination
- Systems must conduct a **basic assessment (Level 1)** or a more **detailed assessment (Level 2)** depending on the severity and frequency of contamination
- Purpose is to identify sanitary defects that cause contamination
- Most commonly will be required if a certain number of total coliform samples are positive or if all the required repeat samples are not collected after a total coliform positive routine sample.



Sanitary Defects

Sanitary defect is a defect that could provide a pathway of entry for microbial contamination into the distribution system

- Holes in storage tanks
- Breaks in pipes
- Cracks in well seals or casings



Seasonal Systems

- By definition a PWS that serves water a portion of the year or shuts-down a portion of the system for part of the year
 - approximately 1750 in Michigan
- Must follow an approved start-up procedure prior to serving water to the public and certify that it was followed



Seasonal System Requirements

- Must monitor monthly for all months they are in operation, unless reduced criteria is met
 - DEQ and LHD recommend quarterly sampling as a minimum
- If monitoring less than monthly, the system must sample during high vulnerability periods as designated in their approved sample siting plan
- Note: Seasonal systems that transition into RTCR at quarterly or annual monitoring must have a sample siting plan approved **PRIOR** to April 1, 2016 that designates the time period for monitoring

Monitoring Frequencies for Groundwater NCWS Proposed by MDEQ and in Draft Act 399 Revisions*

System Type	RTCR Baseline	Increased	Decreased	RTCR Transition
NCWS Serving ≤ 1000	1/quarter	1/month	1/year	Same frequency as under the TCR For annual: Level 2 Assessment in 1 st and subsequent years
NCWS- Seasonal	1/month when open	NA	1/quarter	For quarterly: identify vulnerable period for monitoring
NCWS Serving > 1000	1/month	NA	NA	All NCWS serving > 1000 must sample monthly
NCWS- Seasonal Serving > 1000	1/month	NA	NA	All Seasonal NCWS > 1000 must sample monthly when open

NCWSs on reduced (decreased) monitoring remain on that schedule unless they trigger more frequent monitoring or are otherwise directed by the state or local county public health department.

*By law, local county public health departments have the authority to require more frequent sampling if deemed necessary for protection of public health.

RTCR Compliance Possibilities

1. E. coli MCL

2. Treatment Technique Violation
 - A failure to do a required action.
 - A failure to correct a problem within the drinking water system that if not corrected could potentially result in contamination of the drinking water.

E. Coli MCL Violations

A E. coli MCL Violation occurs with any of these sampling set combinations

Routine Sample	Repeat Sample
EC+	TC+
EC+	Any missed repeat sample
TC+	EC+
TC+	TC+ (no E.coli analyzed)

Remember that failure to conduct repeat monitoring automatically triggers a Level 1 or Level 2 Assessment

RTCR Treatment Technique Violations

- Failure to conduct a Level 1 or Level 2 Assessment within 30 days of learning of the trigger
- Failure to correct all sanitary defects from a Level 1 or Level 2 assessment within 30 days of learning of the trigger or in the approved corrective action plan
- Failure of a seasonal system to complete their approved start-up procedure prior to serving water to the public

Key Elements of a Level 1 Assessment

Look at conditions that could have occurred prior to collection of TC+ samples.

- Inadequacies in sample sites, sampling protocol, and sample processing
- Atypical events that may have affected water quality
- Changes to distribution system or storage
- Evaluation of source water and treatment

Level 1 Assessment Form



Michigan Department of Environmental Quality Coliform Bacteria Level 1 Assessment Form for Noncommunity Public Water Supplies

This assessment is intended to review general water system infrastructure, operating and sampling protocols and should be completed by a knowledgeable representative of the water system. To complete this form electronically, click on the gray boxes and type in your responses. For printed forms, write in your responses. **If you have any questions please contact <LHD Name> at <Phone>.**

Return form no later than _____ to: <LHD Information>.

Noncommunity Water System Name: []	WSSN: []	Date Completed: []	Form required in response to: Total Coliform Positive(s): <input type="checkbox"/>
Name & Title of Person Completing Onsite Assessment: [] <input type="checkbox"/> LHD collected assessment information via phone	Phone Number: []	Email Address: []	Failure to Collect Repeat Samples After Initial Routine Positive: <input type="checkbox"/>

Issues		Check	Description (attach additional sheets if necessary)
1.	Has anything unusual occurred prior to sample collection? Loss of pressure or power outage; operation and maintenance activities; vandalism; visible indicators of unsanitary conditions; etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>	Use this space to describe all issues identified. If sampling events correspond to any issues noted, list by date in relation to the corresponding results. (e.g. replaced well pump on "date", samples taken next day, results were positive for bacteria). [] Corrective Action (attach additional sheets if necessary) <input type="checkbox"/> Supply will be following Level 1 Corrective Action Plan (CAP) provided by LHD (e.g. chlorination, flushing, sampling) on or before (Date) _____. OR <input type="checkbox"/> Attached is a detailed corrective action plan proposal and the corresponding completion dates.
2.	Have there been any recent changes to the water system? New plumbing installed; pump replacement; pressure tank replacement; treatment system installed; operational changes; issues with or new potential sources of contamination; etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>	
3.	Sampling Site/Protocol: Sample tap damaged or inaccessible; improper sampling techniques; improper sample location; failure to collect repeat samples after initial routine positive; etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>	
4.	Well: Problem with wellhead, cap, vent screen, conduit; evidence of flooding; etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>	
5.	Treatment Process (if applicable): Interruptions; chemical refill overdue; filter change due; incorrect chemical solution concentration; dosage adjustment needed; other operations and maintenance issues; etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6.	Pressure Tank: Recent work performed; pressure tank issues; pump runs more often, etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>	
7.	Distribution System: Plumbing in disrepair; leaking joints; pressure loss; cross connections; dead-end plumbing; frozen pipes, etc.	Yes <input type="checkbox"/> No <input type="checkbox"/>	
8.	Other Related Issue(s)? Check applicable box and describe event in "Description" box	Yes <input type="checkbox"/> No <input type="checkbox"/>	

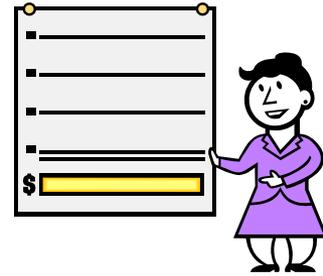
Local Health Department Use Only

Date of Trigger: _____ Date Reviewed: _____ Reviewed By: _____

CAP Paperwork Complete Corrections completed within approved timeline Date System Notified CAP Approved: _____

Approved By: _____

Bottom Line



A NCWS will be required to collect water samples **monthly** if the proper number of samples or repeat samples are not collected, if a second Level 1 Assessment is incurred within a year, and if there is an *E. coli* MCL violation or a coliform treatment technique violation.

THEREFORE

- Required Assessments must be conducted on time and corrected actions must be completed by the dates set.
- Seasonal systems must have an approved start up procedure and certify annually that it was followed, samples must be collected during vulnerable periods as defined in the siting plan.**
- All employees, staff, contractors, etc. involved with sample collection at a NCWS must receive adequate training on the new RTCR requirements. Any mistake made could easily trigger monthly sample collections with subsequent increased operating costs.

****Work to develop and approve the start up procedures will begin in 2015**

→	Pollution Prevention
	Waste
→	Water
	Aquatic Invasive Species
	Biosolids & Industrial Pretreatment
	Campgrounds and Pools
→	Drinking Water
	Abandoned Water Wells
	Community Water Supply
	Contamination Investigation
→	▶ Noncommunity Water Supply
	Source Water Assessment
	Water Wellhead Protection

Noncommunity Water Supply

A Noncommunity Water Supply is a water system that provides water for drinking or potable purposes to 25 or more persons at least 60 days per year or has 15 or more service connections.

Michigan is home to nearly 10,000 noncommunity water supply systems, which includes schools, restaurants, motels, campgrounds, and churches. The Michigan Safe Drinking Water Act (Act 399), enacted in 1976, enabled the Michigan Department of Environmental Quality (DEQ) to maintain primacy (state authority) over the drinking water program in our state. The DEQ contracts with local health departments to maintain a noncommunity water supply program in each county. Noncommunity water supply staff at DEQ supports the local health departments through training, technical support, and program evaluation.

Laws and Rules

- [Michigan Safe Drinking Water Act \(Act 399, P.A. 1976\)](#) PDF
- [Well Construction Code \(Part 127 of Act 368\)](#) PDF
- [Cross Connection Rules Manual - Fourth Edition](#) PDF
- [Installing Treatment](#)
- [Water Sampling Requirements](#)
- [Current Drinking Water Standards](#)
- [School & Day Care Reporting Requirements](#)
- [Administrative Fines](#)
- [Water Withdrawal Assessment Tool](#)
- [Revised Total Coliform Rule](#)

Rule Package



- ~~02/13/2013~~ ~~RTCR in *Federal Register*~~
- ~~03/03/2014~~ ~~Request for Rulemaking~~
- ~~05/29/2014~~ ~~Stakeholder meeting~~
- ~~06/27/2014~~ ~~Stakeholder meeting~~
- **NOW** **Public Comment Period**
- Future date Submit rules for ORR/LSB review
- **Future date** **Public hearing**
- 02/13/2015 EPA primacy due (could extend 2 years)
- Future date Promulgate rules
- Future date Submit primacy package
- **04/01/2016** **RTCR Compliance date**

- Water
- Aquatic Invasive Species
- Biosolids & Industrial Pretreatment
- Campgrounds and Pools
- Drinking Water**
- Abandoned Water Wells
- Community Water Supply

print friendly

Community Water Supply

Community Water Supply Program

The Community Water Supply Program oversees

- ## Laws and Rules
- [Michigan Safe Drinking Water Act \(Act 399, P.A. 1976\)](#) PDF
 - [Current Drinking Water Standards](#)
 - [Administrative Fines](#)
 - [Consumer Confidence Report Rule](#)
 - [Lead and Copper Rule](#)
 - [Public Notification Rule](#)
 - [Total Coliform Rule](#)
 - [Rule Promulgation](#)

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- ### Rule Promulgation Steps:
- 03/03/2015: ORR accepts the [RFR 2014-023 EQ](#) and [creates website to follow the rulemaking process](#)
 - 05/29/2014: [Stakeholder meeting; agenda and slides](#)
 - 06/27/2014: Stakeholder meeting; [draft proposed rules](#), [agenda](#), and slides